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RADIOCHEMICAL DIAGNOSTICS FOR THE NATIONAL IGNITION FACILITY. M.A. Stoyer, G.B. Hudson and R.W. Lougheed, Isotopes Sciences Division, Lawrence Livermore National Laboratory, Livermore, CA 94550.

The high efficiency of targets at the National Ignition Facility (NIF) will permit the use of radiochemical diagnostic techniques for the analysis of the target capsule implosion. Analysis of the debris following ignition for isotopes produced in the implosion can yield information about the mix of materials during the implosion. By utilizing carefully chosen isotopes doped in various locations in the target capsule, spatial information can also be obtained. Charged-particle reactions are being investigated as a source of valuable diagnostic information because the density of the NIF capsules at the time of ignition will be too high for the charged particles to escape. Fusion conditions in the target can be determined by measuring the fusion products. Recent experiments at the NOVA laser facility at LLNL will be discussed to illustrate the development of important diagnostic tools for NIF.

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